From arc5 at ix.netcom.com Sun Nov 3 07:13:57 2019
From: arc5 at ix.netcom.com (David Stinson)
Date: Sun, 3 Nov 2019 06:13:57 -0600
Subject: [BoatAnchors] Smart People: 70-Volt Line to Voice Coil Transformer-
Message-ID: <ed33db6d-f8ee-048a-d53a-6d72ed5e1647@ix.netcom.com>

Dear Smarter-Than-Me People:
Is there anyone in our community who is expert with 70-Volt-Line
distributed audio?
I ask because I have an application for a larger-than-normal
Line-to-Voice Coil transformer.
It is easily twice the size and of more robust construction than the
ones you commonly see.? It has no maker markings.? Line-side has four
line selections (unmarked).? Highest DC resistance is 117 Ohms.?
Voice-coil side has three (unmarked) selections, which are likely 4-8-16
Ohms.?? Please see the attached photo.

My question:? The transformer is part of a cathode-modulation test.? Can
this transformer survive 200 mA current for as much as 5 mins, assuming
a duty-cycle of 25% or less?? That would mean the windings would have to
dissipate about 5 Watts as heat during on-cycle.? That don't sound like
much but it is, especially when dumped into a heat-retaining iron core.?
I'm doubtful but don't know the capabilities of this transformer.? Any
insights would be appreciated.

TNX OM ES 73 DE Dave AB5S

From cbmcgr at gmail.com Sun Nov 3 11:27:10 2019
From: cbmcgr at gmail.com (Chuck McGregor)
Date: Sun, 3 Nov 2019 08:27:10 -0800
Subject: [BoatAnchors] Smart People: 70-Volt Line to Voice Coil
 Transformer-
In-Reply-To: <ed33db6d-f8ee-048a-d53a-6d72ed5e1647@ix.netcom.com>
References: <ed33db6d-f8ee-048a-d53a-6d72ed5e1647@ix.netcom.com>
Message-ID: <CAFTq00RnGkUEu14YL=iJ54pnqabn=t2MyTH5G1tVZ3ty2Axj0g@mail.gmail.com>

Dave-
Your transformer was probably intended to match an amplifier having only
4,8, 16 ohm outputs to a 70volt distribution system.
If this is the case, the transformer was not designed to carry DC current.
Thermal buildup from DC through the winding resistances

is only one of your problems. Magnetic saturation of the transformer core
is the other big problem.
I don't know enough about nonlinear magnetics to guess whether your scheme
will work, or smoke.

If you try this, watch for distortion of the ac current waveforms in the
transformer windings as a sign of trouble.

good luck,
Chuck K7MCG

On Sun, Nov 3, 2019 at 4:14 AM David Stinson via BoatAnchors <
boatanchors at lists.theporch.com> wrote:

> Dear Smarter-Than-Me People:
> Is there anyone in our community who is expert with 70-Volt-Line
> distributed audio?
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> Line-to-Voice Coil transformer.
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> line selections (unmarked). Highest DC resistance is 117 Ohms.
> Voice-coil side has three (unmarked) selections, which are likely 4-8-16
> Ohms.   Please see the attached photo.
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> a duty-cycle of 25% or less? That would mean the windings would have to
> dissipate about 5 Watts as heat during on-cycle. That don't sound like
> much but it is, especially when dumped into a heat-retaining iron core.
> I'm doubtful but don't know the capabilities of this transformer. Any
> insights would be appreciated.
>
> TNX OM ES 73 DE Dave AB5S
>
>
>
>
> --
> This email has been checked for viruses by Avast antivirus software.
> https://www.avast.com/antivirus
> ____
> BoatAnchors mailing list
> BoatAnchors at lists.theporch.com
> https://lists.theporch.com/mailman/listinfo/boatanchors
>

From spr at earthlink.net Sun Nov 3 12:55:09 2019

From: spr at earthlink.net (Scott Robinson)
Date: Sun, 3 Nov 2019 09:55:09 -0800
Subject: [BoatAnchors] Smart People: 70-Volt Line to Voice Coil
 Transformer-
In-Reply-To: <ed33db6d-f8ee-048a-d53a-6d72ed5e1647@ix.netcom.com>
References: <ed33db6d-f8ee-048a-d53a-6d72ed5e1647@ix.netcom.com>
Message-ID: <baaec2a3-9140-0912-80c5-911145132eb9@earthlink.net>

HI David,

You can do a 200 mA DC test from a power supply and watch the
transformer temperature.

Better still, you can measure the winding temp as follows: using your
best ohmmeter, measure the cold winding resistance. Then feed 200 mA
through the transformer for, say, a minute. Disconnect the 200 mA source
and immediately (so the winding doesn't have time to coll down) again
measure the winding resistance. The resistance of copper rises with
temperature by 0.393% per degree Centigrade, so if the resistance rises
by, say, 10%, the temperature rise will be will be .1/.00393 = 25.45
degrees.

Further example:

You have 100 feet of 20 gauge wire and its resistance is 1.015 ohms at
20? C (room temp). If the temperature of the wire goes up 10?C, the
resistance will change by 0.0399 ohms (10 degrees * 0.00393 per degree *
1.015 ohms = 0.0399 ohms).

The wire resistance will now be 1.015 ohms + 0.0399 ohms = 1.0549 ohms.

Since the wire insulation is probably good for at least 100 deg C, you
can extrapolate the 5 minute temperature from your 1 minute test and see
if the temperature is safe.

However, you'll have another problem: line-to-voice-coil transformers do
not have gapped cores and so the core will saturate, greatly reducing
the inductance. Do your modulation test at the highest convenient frequency.

Let us know how this all works out!

Peace,

Scott

On 11/3/19 4:13 AM, David Stinson via BoatAnchors wrote:
> Dear Smarter-Than-Me People:
> Is there anyone in our community who is expert with 70-Volt-Line

> distributed audio?
> I ask because I have an application for a larger-than-normal
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> Voice-coil side has three (unmarked) selections, which are likely 4-8-16
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> much but it is, especially when dumped into a heat-retaining iron core.
> I'm doubtful but don't know the capabilities of this transformer.? Any
> insights would be appreciated.
>
> TNX OM ES 73 DE Dave AB5S
>
>
>
>

From infomet at embarqmail.com Mon Nov 4 12:23:46 2019
From: infomet at embarqmail.com (Wilson Lamb)
Date: Mon, 4 Nov 2019 12:23:46 -0500 (EST)
Subject: [BoatAnchors] Cathode Modulation Transformer
In-Reply-To: <mailman.10.1572886801.14015.boatanchors@lists.theporch.com>
References: <mailman.10.1572886801.14015.boatanchors@lists.theporch.com>
Message-ID: <1373103833.234775.1572888226793.JavaMail.zimbra@embarqmail.com>

Is this where we reintroduce the Heising modulation concept??
https://www.amwindow.org/tech/htm/modheising.htm
https://en.wikipedia.org/wiki/Raymond_A._Heising
WL

From nbroline at austin.rr.com Mon Nov 4 12:52:04 2019
From: nbroline at austin.rr.com (Nick Broline)
Date: Mon, 04 Nov 2019 17:52:04 +0000
Subject: [BoatAnchors] 70V Transformer Issue
Message-ID: <b8f82551c9df71b4102847157478041648396364@webmail>

Dave, like others, I think your problem will be the large amount of continuous current in the hi-Z windings.....it was designed for zero, of course.

However, you can figure out the saturation curve for the transformer with a resistor and a variable voltage supply With your handy-dandy inductance bridge you can first measure the inductance of the Low-Z windings......say the highest impedance one......with the primary open circuit. This is the intrinsic secondary inductance of the transformer in its intended use.

Now, you can introduce primary current into the circuit by using a variable voltage power supply. Since the output impedance of a regulated supply is essentially zero, it would provide a short circuit impedance across the primary and totally blow any validity to secondary inductance measurements The supply must have a series resistance placed in the circuit to make the supply look more like a current source. If you are fortunate enough to have a power supply that has a constant current feature in it it doesn't help because the output circuit of the supply will most likely have a relatively large electrolytic cap across it, and, without the series R, would place a virtual AC short across the primary, again invalidating the secondary inductance measurements.

Once this is all cobbled up, then start watching the inductance of the secondary as the primary current is increased from zero. You will most likely see the inductance drop as the core nears saturation.

The limit of this technique is the "leakage inductance" of the secondary, but that will be insignificant for this test......this is just a first cut!

As for the resistor value? You can make that large enough so that the secondary inductance is reduce by, say, 5% when the primary is set at zero volts out, but turned on and working.

Oh....make sure the inductance bridge excitation frequency is somewhere cleanly in the audio range.....say 1kc. This is not the place for a digital inductance bridge intended to measure stuff like RF chokes and caps and operates at 50 kc!!!

Also, you might consider using a beefy receiving power supply choke instead. They are designed to handle DC current without saturating, but they all will at come point!

Sorry for the length, but it takes longer to read this than doing it.

73

Nick Broline W5FUA
512 327 7425
We shall not cease from exploration

And the end of our exploring
Will be to arrive where we started
And know the place for the first time. T.S. Eliot -- "Little
Gidding"

From arc5 at ix.netcom.com Mon Nov 4 18:12:58 2019
From: arc5 at ix.netcom.com (David Stinson)
Date: Mon, 4 Nov 2019 17:12:58 -0600
Subject: [BoatAnchors] GO-9 Progress Report. 4 Nov 19, First Contact
Message-ID: <862d84aa-3939-d0c7-7665-04421ef78ed1@ix.netcom.com>

GO-9 Progress Report. 4 Nov 19

On the bench:
https://photos.app.goo.gl/CVEUCCRUNXiVzgRs8
Thank you to everyone who is contributing discussion and knowledge to
this project.
You're invaluable!

Home-brewing stuff from scratch has never been a "strong point" for me.?
I begin with good intentions and a vision of this "neat and sleek"
design with laced-cables and right-angle wires and everything easy to
reach. Then I install? the Transformer sub-chassis and discover my "neat
and clean" vision has collapsed into smouldering ruin; I built the
Transformer Deck backwards, the hardware holes don't line-up and the
"tidy" wiring harness is now a fantasy.? Not about to pull everything
out and rebuild it; I ain't gonna live forever.? So the orderly wiring
is now a rat's nest and spider web, which is why I'll carefully crop all
these photos to hid the most embarrassing jumbles.? Hey- at least it's
admitted.? And it works, so "all's well that ends well," right?

The plan for the power supply is to build it in vertical layers, using
"floors" or sub-chassis.? Some aluminium angle-stock easily adds a
"floor" mount.? I'm no MIke Hanz when it comes to metal work,? but I did
manage to mount it right-side-up:
https://photos.app.goo.gl/CKjydzEpxT1JKtyWA

The build-space is only 7 inches wide.? The Transformer deck is cramped
and crowded- hard to work in there since my "master plan" turned into a
"Mess-ter plan."?? Worse- there's HIGH voltage running-around in there.?
With the gas pedal (variac) mashed to the floor, we're talking 1700
Volts or more.? I'm paranoid about such voltages- a lot.? Have rebuilt a
couple of Heathkit DX-100s, recovering them from the fried and ashy
results of careless design around High Voltage, and that was only
8-or-900 Volts, so I kinda over-compensate.? The bridge rectifier wires
from the HV transformer secondary are triple-covered in heat-shrink
tubing and are spaced at least an inch apart, with no sharp bends or
proximity to grounds.? The solid terminal strip that connects the HV

leads of the transformer to those leads will get a double coating of HV Varnish.? The bridge rectifier is mounted on semi-flexable Lexan sheet with holes drilled for the HV leads.
https://photos.app.goo.gl/Uo8rCNamzWooaimN9

The Low B+ ("Low" - That's funny.? It can go as high as 700V+) filter caps and future regulator mount on another Lexan sheet above the bridge, the center-tap wire passing through drilled holes in both sheets.?? Lexan is hard to cut; it's tough and semi-flexible.? You can't just score it- even half its depth and break it.? I ended-up using a power hand grinder to cut it. Drilling is no problem if one uses light, steady pressure and patiently waits for bit heating to do most of the work.? You can break the stuff if you force it.? The two B+ output leads also pass through holes drilled in the Lexan before connection to the power supply/Transmitter spring contacts.? Update:? The Low B+ regulator may not be needed.? Will depend on any problems with FMing on modulation.? We'll see.

Speaking of the connections between the Power Supply chassis and the Transmitter chassis:? The transmitter has knob-looking posts which are connected by spring-contacts on the power supply:
https://photos.app.goo.gl/k4w2VmpW6UgZvyU68
I had to remove these spring contacts to mount the backwards-Transformer deck and wire it up.? If you take these things off, have a special holder for the hardware and remember - Long stand-offs on top, short on bottom.? These strips have four mounting screws with star-washers and nuts on the back side.? View with the right-hand strip removed:
https://photos.app.goo.gl/Xs3wvXbhYsim9NH8A
When you go to put these back on, it's nearly impossible to reach the nuts on the back of the one on the right.? I wasted lots of time and frustration trying to start those blasted nuts.? Hit upon an idea:? I layed the strip flat and put a drop of glue to the side (not in!) of each of the holes.? Then carefully aligned the washers and nuts over the holes:
https://photos.app.goo.gl/jsEEVjxniDU7nqkr7
The glue set in a couple of hours and held the washers and nuts just enough that, if you're gentle, you can get the nuts started. Only one of the four failed to start (the hardest to reach, of course) but did managed to get the strip properly remounted.

Oscillator-Intermediate Amp Filaments:
The ferrites across the High-IR-drop filament chokes did not work; it introduced 60Hz FM to the Oscillator.? I'm pretty sure some of you expected that, LOL.? Was worth trying.? With only 10 Volts on the Osc. filament, the drive from it is reduced quite a bit.? Not about to try to disconnect the wire snaggle and pull that heavy transformer deck back out to shoe-horn in a 15 VCT transformer, if I could find one.? Hit the junk box and found a little "Radio Shack" 6V transformer and hooked that

up as a boost winding (note winding phasing).? This haywire delivers 11.9 V to the Osc and IA filaments and has improved drive to expected levels?? It is small enough to tack on top of the original filament transformer.? "More than one way to skin a cat," they say.? Here's the idea being tested:
https://photos.app.goo.gl/xBjmLr2WvuUzaSuQ6

Here's a rough diagram of the power supply as it stands now:
https://photos.app.goo.gl/4VxtZWkMEkwQhaUh7
Haven't yet built the Grid-Block bias supply or any of the control circuits. ? The High Voltage design uses the "Economy" principle, where a center-tapped transformer uses a bridge rectifier and the normally unused center tap provides a second DC High Voltage of one-half the value of the full secondary.? It needs only capacitive filtering.? High B+ uses six 330 uFd 400V caps with 100K resistors across them in series for filtering.? Low B+ uses two 120 uFd caps with 100K resistors.? This seems to be adequate- no hum or FM in the transmitter signal or chirp on keying.?? I changed the panel-mounted Plate Current meter connection.? It was originally in the Hi-B+ negative lead, which prevented having a meter on the front panel at full B+ (as long as the meter doesn't open-circuit).? I couldn't just leave it in the negative lead from the bridge because this is a solid-state rectifier.? The inrush current from charging the caps would insta-smoke the meter. Putting it in the PA Cathode circuit (with long, bypassed leads) solves that issue, but it does mean the meter is reading the sum of Plate, Grid, Suppressor and Screen currents.? I very carefully insulated a temporary current meter and put it in the Hi-B+ lead to read actual Plate Current and compare it to the panel-mounted meter.? At maximum rated Plate Current of 175 mA, the panel-mounted meter reads 260 mA.? I can live with this.

You probably remember that the "keying" lead is power supply pin 17, which grounds the grid circuits of the Osc., IA and, in the original owner's "grid block keying" change, the PA grid circuit to ground.? Review of the simplified diagram and the keying points:
https://photos.app.goo.gl/BkRAsT5X54ozFwdGA
I mention it at this time because, with the "keying"point left unconnected and no negative cut-off bias at this point, the Oscillator stage will start working at a low level, as do the other stages, and a few Watts of "Backwave" get to the load.? One of our members kept the PA grid circuit grounded and keys only the Osc/IA point, leaving the PA running unbiased during key-up.? That configuration does not exhibit back-wave.? Since we'll eventually be using grid-block keying, this won't be an issue.? Just mentioned it in case someone else runs-into this situation.

Grounded pin 17 (keying), fired-up the power supply and the transmitter seems to be cooking.? Cranked on the B+ variac and "put the pedal to the metal," bringing the Low- B+ to the rated 550V and the Hi-B+ to about

1400 (estimated- my meter won't go that high).? This maxed the PA Plate current at 175 mA.? Tuned-up into a 50-Ohm load, measured with both my wattmeter and with my calibrated scope, the transmitter is delivering 200W+ out on 3890 KC. This seems a lot but both instruments agree.

First QSO:
Powered the B+ off and hay-wired the large Line-to-Voice-Coil transformer into the Cathode lead, fed it's 4-ohm tap with a small audio amplifier and a lo-Z dynamic mike.? Powered up and tuned-up the transmitter to 150W out, then cranked-up the audio until I got a nice, clean 100% waveform.? Cathode modulation doesn't add to the PEP of the carrier but that's OK.? The simplicity is worth the trade-off.? First contact was with local AM guru Mason, K5YHX, who reported excellent audio.? Kinda funny to watch as my "keying" was turning the variac on and off, switching the B+ just like in the original circuit.? Yes, it did "swoop away" for about half a second.? Didn't mind.? Was too happy about the contact.

An important point:
It is very easy to mis-tune this transmitter and be wind-up on the wrong frequency.? My first tune-up turned-out to be on 5 MC. The tuning charts give a "ball park" for settings and should be consulted.?? Settings for operation of this specific rig on 3890 KC are:
A=2?? B=600? C=2?? D=50
E=1? F=80? G= Just under 4MC marking
H=Current? I=88? J=655

Things are coming together.? More later.
And I have no idea where I'm going to put this big beast!

GL OM ES 73 DE Dave AB5S

From johnmb at nc.rr.com Mon Nov 4 19:49:39 2019
From: johnmb at nc.rr.com (john)
Date: Mon, 4 Nov 2019 19:49:39 -0500
Subject: [BoatAnchors] GO-9 Progress Report. 4 Nov 19, First Contact
In-Reply-To: <862d84aa-3939-d0c7-7665-04421ef78ed1@ix.netcom.com>
References: <862d84aa-3939-d0c7-7665-04421ef78ed1@ix.netcom.com>
Message-ID: <3e78b2a4-67d3-3ac3-16a1-9a614f95d3bc@nc.rr.com>

On 11/4/2019 6:12 PM, David Stinson via BoatAnchors wrote:
> GO (snip)

Dave, as always you're an inspiration. I too have grand dreams of well crafted gear which always falls victim to a wire that I melt the insulation off of, or a hole that doesn't quite line up right, no matter how carefully I think I've measured.

I think it was Frank Lloyd Wright who coined "form follows function". Your rigs work, therefore they're beautiful.

73
John K5MO

From arc5 at ix.netcom.com Fri Nov 8 09:01:02 2019
From: arc5 at ix.netcom.com (David Stinson)
Date: Fri, 8 Nov 2019 08:01:02 -0600
Subject: [BoatAnchors] GO-9 Progress 7 Nov. 19: "Two Birds With One..."
Message-ID: <9c83527c-c22a-a447-d5e3-28b042fcf5d9@ix.netcom.com>

GO9 Transmitter Progress 7 Nov 19:? "Two Birds With One..."

Not counting the improvement needed in the modulation scheme, two system functions still needed to fully stand-up the GO-9 transmitter:
Grid-Block keying and antenna TR switching.? Tests showed that a low-current source of at least 80-90 negative Volts is needed to fully cut-off the three stages.? Don't relish the idea of adding a 5th transformer to this project for a bias supply.
Been ruminating on the problem all day until I remembered I had a 115 VAC Dowkey Relay in "The Cave." ? Since the relay is designed to be driven directly from the 115VAC primary power, the coil will work on rough half-wave rectified DC as well as AC and the grid circuits at cut-off draw practically no current, this presented a simple solution for both problems.
Here is the circuit:
https://photos.app.goo.gl/uM9hkA23kqcT5kz58

Since U.S. house current is supplied "Hot/Neutral," Neutral being grounded, a half-wave rectifier and a crude filter in the "Hot" lead (fused of course) easily provides the potential needed to both drive the relay and bias the grids.? The connection to the transmitter with the key up is essentially an open circuit, so a meter reads about -160VDC at keying/grid bias point 17.
 ? When we close the key, the grids are grounded, keying the transmitter and closing the circuit of the Dowkey relay. On-the-air tests work well.
Down-side:
This puts rectified line-voltage on the key contacts.? My intent is to

introduce a MOSFET at this point, so the key has only the low MOSFET
gate voltage on the contacts.? Still work to do.

GL OM ES 73 DE Dave AB5S

From pcbrickey at gmail.com Fri Nov 8 17:34:34 2019
From: pcbrickey at gmail.com (Peter Brickey)
Date: Fri, 8 Nov 2019 14:34:34 -0800
Subject: [BoatAnchors] transformer rewind
Message-ID: <CAMfBZxc0rhG4FYDzWYMnP+VuWmkr2PHYpw9vhTiZJPEqx1UpOg@mail.gmail.com>

 I need a Scott 299B power transformer rewind as the high voltage winding
is shorted. Does anyone have a recommendation for a rewinding service - I
see that Gary WZ1M is no longer in business.
  Thanks,
                  Peter   K6DGH

From johnmb at nc.rr.com Fri Nov 8 19:09:58 2019
From: johnmb at nc.rr.com (john)
Date: Fri, 8 Nov 2019 19:09:58 -0500
Subject: [BoatAnchors] transformer rewind
In-Reply-To: <CAMfBZxc0rhG4FYDzWYMnP+VuWmkr2PHYpw9vhTiZJPEqx1UpOg@mail.gmail.com>
References: <CAMfBZxc0rhG4FYDzWYMnP+VuWmkr2PHYpw9vhTiZJPEqx1UpOg@mail.gmail.com>
Message-ID: <a160359a-868c-0c62-2b4e-06cd1f97219f@nc.rr.com>

Hi Peter

There's a local place which has advertised in CQ that might be able to
help. The owner is a ham, or at least he shows up at some hamfests.

www.epd-inc.com

Hope that works out !

73
John K5MO

On 11/8/2019 5:34 PM, Peter Brickey via BoatAnchors wrote:
>   I (snip)

From kim.herron at sbcglobal.net Fri Nov 8 19:44:44 2019
From: kim.herron at sbcglobal.net (Kim Herron)
Date: Fri, 08 Nov 2019 19:44:44 -0500
Subject: [BoatAnchors] transformer rewind
In-Reply-To: <CAMfBZxc0rhG4FYDzWYMnP+VuWmkr2PHYpw9vhTiZJPEqx1UpOg@mail.gmail.com>
References: <CAMfBZxc0rhG4FYDzWYMnP+VuWmkr2PHYpw9vhTiZJPEqx1UpOg@mail.gmail.com>
Message-ID: <5DC60BFC.28429.3EEA2@kim.herron.sbcglobal.net>

Hi Peter!!

Heyboer Transformer in Grand Haven MI can do it. I get
antique stuff done there regularly. Ask for Altan.

On 8 Nov 2019 at 14:34, Peter Brickey via BoatAnchors
wrote:

> I need a Scott 299B power transformer rewind as the high voltage
> winding
> is shorted. Does anyone have a recommendation for a rewinding
> service - I
> see that Gary WZ1M is no longer in business.
> Thanks,
> Peter K6DGH
> _____
> BoatAnchors mailing list
> BoatAnchors at lists.theporch.com
> https://lists.theporch.com/mailman/listinfo/boatanchors

John Goller, K9UWA & Jean Goller, N9PXF
Antique Radio Restorations
k9uwa at arrl.net
Visit our Web Site at:
http://www.JohnJeanAntiqueRadio.com
4836 Ranch Road
Leo, IN 46765
USA
1-260-637-6426

From gumbear at pacbell.net Fri Nov 8 19:54:04 2019
From: gumbear at pacbell.net (Arden Allen)
Date: Fri, 8 Nov 2019 16:54:04 -0800
Subject: [BoatAnchors] transformer rewind
In-Reply-To: <CAMfBZxc0rhG4FYDzWYMnP+VuWmkr2PHYpw9vhTiZJPEqx1UpOg@mail.gmail.com>
References: <CAMfBZxc0rhG4FYDzWYMnP+VuWmkr2PHYpw9vhTiZJPEqx1UpOg@mail.gmail.com>
Message-ID: <350E0B22F73B4CD999756918218DBFF8@Lenovo>

> I need a Scott 299B power transformer rewind .....

Heyboer transformers. Not fast but good quality.

https://www.heyboertransformers.com/

Arden Allen
KB6NAX

He who is cruel to animals becomes
hard also in his dealings with men.
We can judge the heart of a man by
his treatment of animals.
???Immanuel Kant

From spr at earthlink.net Sat Nov 9 15:19:42 2019
From: spr at earthlink.net (spr at earthlink.net)
Date: Sat, 9 Nov 2019 12:19:42 -0800 (GMT-08:00)
Subject: [BoatAnchors] Need schematic for Ecophone model A receiver
Message-ID: <145321074.578.1573330783142@wamui-duchess.atl.sa.earthlink.net>

Folks,

As the subject line says...and it isn't in Riders AFAIK.

All help gratefully received.

Scott Robinson

From jerry.proc at sympatico.ca Thu Nov 14 11:48:52 2019
From: jerry.proc at sympatico.ca (Jerry Proc)
Date: Thu, 14 Nov 2019 11:48:52 -0500
Subject: [BoatAnchors] Stabilizing The Hartley Oscillator.
Message-ID: <003c01d59b0b$65a056d0$30e10470$@proc@sympatico.ca>

Hello Everyone,

I am reading an extract from the diary of radio operator who was using equipment from the late 1920s. In his record, he mentions the use of "clips" on the coil of a Hartley oscillator as a means of reducing frequency drift.

To me, it sounds like an obsolete technique used in the days when transmitting and receiving circuits were out in the open. My 1938 Radio Amateur Handbook discusses frequency creep in a Hartley oscillator and ways to address it but the word clip is absent .

What is this technique all about?

Regards,

Jerry Proc

jerry.proc at sympatico.ca

Web: www.jproc.ca

From ark at ar88.net Thu Nov 14 14:43:44 2019
From: ark at ar88.net (Al Klase)
Date: Thu, 14 Nov 2019 14:43:44 -0500
Subject: [BoatAnchors] Stabilizing The Hartley Oscillator.
In-Reply-To: <003c01d59b0b$65a056d0$30e10470$@proc@sympatico.ca>
References: <003c01d59b0b$65a056d0$30e10470$@proc@sympatico.ca>
Message-ID: <85a84aa2-97e0-3c14-37e1-dc61a8ef9e28@ar88.net>

Jerry,

I don't know about long-term frequency stability, but I can speculate
that you might want to mess with the coil taps to achieve minimal chirp.

Regards,
Al

On 11/14/2019 11:48 AM, Jerry Proc wrote:
> Hello Everyone,
>
>
>
> I am reading an extract from the diary of radio operator who was using
> equipment from the late 1920s. In his record, he mentions the use of "clips"
> on the coil of a Hartley oscillator as a means of reducing frequency drift.
>
>

> To me, it sounds like an obsolete technique used in the days when
> transmitting and receiving circuits were out in the open. My 1938 Radio
> Amateur Handbook discusses frequency creep in a Hartley oscillator and ways
> to address it but the word clip is absent .
>
> What is this technique all about?
>
> Regards,
>
> Jerry Proc
>
> jerry.proc at sympatico.ca
>
> Web: www.jproc.ca
>
> _____
> BoatAnchors mailing list
> BoatAnchors at lists.theporch.com
> https://lists.theporch.com/mailman/listinfo/boatanchors

--
Al Klase ? N3FRQ
Jersey City, NJ
http://www.skywaves.ar88.net/

From gumbear at pacbell.net Thu Nov 14 15:21:28 2019
From: gumbear at pacbell.net (Arden Allen)
Date: Thu, 14 Nov 2019 12:21:28 -0800
Subject: [BoatAnchors] Stabilizing The Hartley Oscillator.
In-Reply-To: <003c01d59b0b$65a056d0$30e10470$@proc@sympatico.ca>
References: <003c01d59b0b$65a056d0$30e10470$@proc@sympatico.ca>
Message-ID: <B237807F3E8A4AE4BE98597FE1DB78A1@Lenovo>

> I am reading an extract from the diary of radio operator who was using
equipment from the late 1920s. In his record, he mentions the use of "clips"
on the coil of a Hartley oscillator as a means of reducing frequency drift.

.....

Well, it may not be so much of a problem with the Hartley oscillator circuit as it would be with any other oscillator topology. Frequency drift is due to drift of tank inductance and capacitance and tube input/output characteristics over operating time. Now if you can devise a tank that the inductance and capacitance drifts cancel each other's effect on frequency you have a temperature compensated oscillator. So I wonder what and how "clips" work for that purpose.

Arden Allen
KB6NAX

From 1oldlens1 at ix.netcom.com Thu Nov 14 15:34:58 2019
From: 1oldlens1 at ix.netcom.com (Richard Knoppow)
Date: Thu, 14 Nov 2019 12:34:58 -0800
Subject: [BoatAnchors] Stabilizing The Hartley Oscillator.
In-Reply-To: <B237807F3E8A4AE4BE98597FE1DB78A1@Lenovo>
References: <003c01d59b0b$65a056d0$30e10470$@proc@sympatico.ca>
 <B237807F3E8A4AE4BE98597FE1DB78A1@Lenovo>
Message-ID: <7d8729f8-f303-e6e7-cb6a-f2cae2da0d83@ix.netcom.com>

    I am not sure why the Hartley was chosen, AFAIK the drift characteristis of a Colpits or other circuit are not much different. One way to stabilize an oscillator is to isolate it from the load. For tubes this was done with an "electron coupled oscillator", where the screen grid is used as the plate of the oscillator and the plate is used to drive the external circuit. A buffer on a solid state circuit can accomplish the same thing. An ECO has the further property that if the ratio of the plate and screen voltage are chosen properly the frequency will not be changed over a wide range of supply voltages. I also don't understand what the clips were for but clips for varying the inductance of coils was fairly common in very early transmitters. If this fellow was not an engineer he may be confusing a couple of things.

On 11/14/2019 12:21 PM, Arden Allen via BoatAnchors wrote:
>> I am reading an extract from the diary of radio operator who
>> was using
> equipment from the late 1920s. In his record, he mentions the use
> of "clips"
> on the coil of a Hartley oscillator as a means of reducing
> frequency drift. ......
>
> Well, it may not be so much of a problem with the Hartley
> oscillator circuit

> as it would be with any other oscillator topology.? Frequency
> drift is due
> to drift of tank inductance and capacitance and tube input/output
> characteristics over operating time.? Now if you can devise a
> tank that the
> inductance and capacitance drifts cancel each other's effect on
> frequency
> you have a temperature compensated oscillator.? So I wonder what
> and how
> "clips" work for that purpose.
>
> Arden Allen
> KB6NAX
> _____
> BoatAnchors mailing list
> BoatAnchors at lists.theporch.com
> https://lists.theporch.com/mailman/listinfo/boatanchors
>

--
Richard Knoppow
1oldlens1 at ix.netcom.com
WB6KBL

From mxc04040 at nifty.ne.jp Fri Nov 15 00:57:36 2019
From: mxc04040 at nifty.ne.jp (Katsuhiko Hirai)
Date: Fri, 15 Nov 2019 14:57:36 +0900
Subject: [BoatAnchors] BoatAnchors Digest, Vol 421, Issue 1
In-Reply-To: <mailman.7.1573750801.18195.boatanchors@lists.theporch.com>
References: <mailman.7.1573750801.18195.boatanchors@lists.theporch.com>
Message-ID: <20191115145735.76E8.4E50566@nifty.ne.jp>

Dear Jerry, and all on this mailing list,
  Good evening to you.
I appreciated your posting regarding the idea to stabilize the
oscillated frequency.
I noticed the article of Ross Gunn in the Navey Lab., as followed:

[1] A New Frequency-Stabilized Oscillator System
By Ross Gunn (Naval Research Laboratory, Washington, D. C.)
Cited from Proceedings of the Institute of Radio Engineers Volume 18, Number 9,
September, 1930
(Sign-in accepted URL: http://ieeexplore.ieee.org/stamp/stamp.jsp?
arnumber=1670767)
(Abstractor free URL: http://ieeexplore.ieee.org/document/1670767/)

[2] The Gunn circuit
  By William A. Edson edited to Vacuum-Tube Oscillators pp. 175.

http://www.tubebooks.org/Books/vto.pdf

  An interesting circuit which secures phase reversal by the use of two tubes was described by Gunn. The arrangement, as shown in Fig. 8.15, is symmetrical, and requires well-shielded tetrodes or pentodes for best results. Because the power output is not large, and two condensers must be varied in tuning, its use is limited to applications where frequency stability is the primary concern. Gunn explained its operation in terms of an infinite series process considering successive transmissions around the loop, but it appears that the more conventional analyses also apply here, and that his analysis could be apllied to any oscillator. Whether the frequency stability is actually superior to that of a properly adjusted one-tube oscillator remains dubious.

[3]TubeBook HomePage
http://www.tubebooks.org/technical_books_online.htm
#Radio (transmitters, receivers, design, repair...)

[4] Dr. Ross Gunn;
      He was a ham radio hobbyist around 1920s.
      He was called "A father of the Atomic gen'd submarine".
      He had introduced several times his interesting practices
      on the QST magazine.

I'm happy if you enjoy his sharp approach around 1930s.
Because I'll confirm his idea on the combined VFO boxes by the late
circuits of analog type SSB tranceivers, sooner.
Best regards,
Katsuhiko Hirai/
JA3ECA, Japan
--
Katsuhiko Hirai <mxc04040 at nifty.ne.jp>
in Ikoma, Nara, Japan.
P.E. of Information Technology,
Researcher of the Software Process Engineering,
Amateur Radio Operator: JA3ECA.

On Thu, 14 Nov 2019 12:00:01 -0500
boatanchors-request at lists.theporch.com wrote:

> Today's Topics:
>
>   1. Stabilizing The Hartley Oscillator. (Jerry Proc)
>
>

From thompson at mindspring.com Fri Nov 15 10:08:35 2019

From: thompson at mindspring.com (Dave Thompson)
Date: Fri, 15 Nov 2019 10:08:35 -0500 (GMT-05:00)
Subject: [BoatAnchors] Stabilizing The Hartley Oscillator.
Message-ID: <1856270221.1858.1573830515592@wamui-eagle.atl.sa.earthlink.net>

Gang.

Phil K4DPK sells a stabilizer on QTH. com classified. A local says it worked great on his DX-100.

Dave K4JRB

From wlfuqu00 at uky.edu Sat Nov 16 02:25:19 2019
From: wlfuqu00 at uky.edu (Fuqua, William)
Date: Sat, 16 Nov 2019 07:25:19 +0000
Subject: [BoatAnchors] Stabilizing The Hartley Oscillator.
In-Reply-To: <B237807F3E8A4AE4BE98597FE1DB78A1@Lenovo>
References: <003c01d59b0b$65a056d0$30e10470$@proc@sympatico.ca>,
<B237807F3E8A4AE4BE98597FE1DB78A1@Lenovo>
Message-ID:
<DM5PR03MB29087ADD6E61F77E7D29CA69CB730@DM5PR03MB2908.namprd03.prod.outlook.com>

Let's say today, knowing what we know today, you were going to build a single tube variable power oscillator that is stable.
What would you do?
I would perhaps make a Clapp oscillator, using as large of capacitances across the tube as possible to reduce the effect of capacitance variations in the tube, and also have the class C Clapp oscillator tuned to one half the desired frequency and couple from the plate using a link coupled tuned circuit at 2x oscillation frequency. This would reduce the effect of changing antenna loading on frequency. Perhaps the efficiency would be lower but it should be more stable.

73
Bill wa4lav

From arc5 at ix.netcom.com Sat Nov 16 14:34:34 2019
From: arc5 at ix.netcom.com (David Stinson)
Date: Sat, 16 Nov 2019 13:34:34 -0600
Subject: [BoatAnchors] A WARNING: The Death Angel Flies Close.
Message-ID: <093c5dfc-b8e5-ac3f-ffd6-f24239a78c5b@ix.netcom.com>

A WARNING:? Close Encounter with the Death Angel.

Some of you may remember an article I wrote some years ago, "Shockless," which was published in an Australian ham publication.? The point was how our focus and attention decline as we age and the great danger of

working with High Voltage where a momentary mental lapse or getting out-of-order in our safety procedures can have tragic consequences.?? The article presented alternatives, like much-lowered B+ voltages, which can bring our old boatanchors alive without excess danger.? Well, I've just had The Death Angel pass so close I could feel his cold, fetid breath and the icy wind from his black wings.? It's only the grace and goodness of The Lord that I am here to write you this warning.

As most of you know, I'm working on a WWII Navy GO-9 transmitter and the project is nearing completion.? The power supply for this transmitter produces 1400V and 540V under load.? When unkeyed, the B+ is near 1800V.?? This level of voltage, if contacted across the body, is almost always instantly fatal.?? I've been very careful to go slow, remember safety, have a sequence for power-up and power down.? Checks and rechecks before putting a hand in there. And it worked.? Until a moment of inattention and a neglected safety check, when it didn't.

I've had the High Voltage fed from a separate AC primary through a variac while tuning and testing.? When plugged directly into house current, the Low B+ is too hot (800V), so I was working on toning it down.? Got that all sorted out, so power down to make a couple of changes.? Turn off the variac.?? Turn off the Filament supply. Wait for the resistors to bleed-away the charge, (**but neglected to check the Hi B+ voltage test point**).? The "B+ ON" warning light was facing away from me.
Just one thing my old, distracted brain forgot:? The Hi B+ wasn't plugged into the variac- my soldering iron was.? The Hi B+ was plugged into the house current, fully live, sitting at 1800 V like a coiled rattle snake.? "Looks like one of the B+ feed wires is a little too close to ground.? I"ll just move..."

WARNING:GRAPHIC PHOTOS
https://photos.app.goo.gl/9NLRVGj93NpSBgdB6
https://photos.app.goo.gl/C4KycfbxKhTYLLre9

Flash and bang.? If my other hand had been on anything conductive, of if I were on a concrete floor instead of a wooden deck, I would not me writing this.? I would have been instantly killed.? Worse, I would have left an deadly rattle snake, coiled to bite the family member who found me.?? The burns on my left hand? look superficial, but my hands won't stop shaking.? The pain is pretty intense.? There is likely some nerve and deep-tissue damage; that will be evident over the next few days.?? The Lord God, in His mercy, decided to let me continue to draw breath, and I prayed my gratitude to Him for sparing me another day.
 ?But one does not get-away with such stupidity unless one is in Congress, and I ain't.

I am going to finish this project; it's too close now to give up on it.?

But DIrty Harry's advice echos in my empty head:
 ? "A man has got to know his limitations."
Have had close calls before, but nothing nearly so deadly as this.? Such Voltages are "a young man's game."? I think I've just had my last warning.? I simply no longer have the mental sharpness essential to deal with such danger.?? I will never again take-on any project that requires such voltages.? I dearly love reviving these historic and beautiful rigs, but not enough to die for them.? All my pending projects that require this sort of voltage are going away.? All my iron at this level will be given away.
 From now on, I'm a "little rig" sorta guy.? Got no more room for big rigs anyway.

Be smarter than me (not very hard).? Be safer than me.? Don't do this. And thank The Almighty for every new day.? You never know when it will suddenly end.

GL OM ES 73 DE Dave AB5S

From ghyoungman at gmail.com Sat Nov 16 14:48:14 2019
From: ghyoungman at gmail.com (Grant Youngman)
Date: Sat, 16 Nov 2019 14:48:14 -0500
Subject: [BoatAnchors] A WARNING: The Death Angel Flies Close.
In-Reply-To: <093c5dfc-b8e5-ac3f-ffd6-f24239a78c5b@ix.netcom.com>
References: <093c5dfc-b8e5-ac3f-ffd6-f24239a78c5b@ix.netcom.com>
Message-ID: <D4D1E86D-42CE-4CA9-8518-F48AD7A5AEC6@gmail.com>

Glad this had a better than deadly ending, Dave. I was there once. Thrown about ten feet across the room, and was lucky to come to with everything still intact ? and nothing more than a couple of nasty burns.

All it takes is one tiny slip of mind ?

Grant NQ5T

> On Nov 16, 2019, at 2:34 PM, David Stinson via BoatAnchors <boatanchors at lists.theporch.com> wrote:
>
> A WARNING: Close Encounter with the Death Angel.
>

From gumbear at pacbell.net Sat Nov 16 15:01:52 2019
From: gumbear at pacbell.net (Arden Allen)
Date: Sat, 16 Nov 2019 12:01:52 -0800
Subject: [BoatAnchors] A WARNING: The Death Angel Flies Close.

In-Reply-To: <093c5dfc-b8e5-ac3f-ffd6-f24239a78c5b@ix.netcom.com>
References: <093c5dfc-b8e5-ac3f-ffd6-f24239a78c5b@ix.netcom.com>
Message-ID: <B99001CF16AB44A7B61068F9B9F69389@Lenovo>

> A WARNING: Close Encounter with the Death Angel. ....

Well, Dave, if The Almighty had anything to do with it he/she used you as a messenger to us all. I'm sorry it had to hurt so much and I hope you heal quickly. Redesign your safe keeping procedures along geriatrics principles. Not even a 9 volt battery should be overlooked.

Arden Allen
KB6NAX

From merv.k9fd at gmail.com Sat Nov 16 15:05:01 2019
From: merv.k9fd at gmail.com (K9FD)
Date: Sat, 16 Nov 2019 10:05:01 -1000
Subject: [BoatAnchors] A WARNING: The Death Angel Flies Close.
In-Reply-To: <D4D1E86D-42CE-4CA9-8518-F48AD7A5AEC6@gmail.com>
References: <093c5dfc-b8e5-ac3f-ffd6-f24239a78c5b@ix.netcom.com>
 <D4D1E86D-42CE-4CA9-8518-F48AD7A5AEC6@gmail.com>
Message-ID: <236f9016-a215-eca5-6c8d-46ee79893f7d@gmail.com>

Admit to being careless in my younger days, I was testing some 4-1000 tubes I bought at a
hamfest,?? I would test the tube,? kill the HV,? pull the plate cap off the tube and remove it,
and put in another tube to test,? energize the HV, etc.,?? I had a number of tubes to test
and my brain got out of sync,? I did not kill the HV and reached in to pull the plate cap off,
BANG,? 5000 volts in my index finger and very lucky may arm was close to the chassis,
the 5000 exited near my elbow.
It blew a chunk off the end of my finger and a hole in my arm about 1/2 inch diameter,
knocked me across the room,?? my wife came and helped me up,? she called the emergency
room and they asked her if I was moving and talking,? she said yes,? and they told her OK
nothing much we can do, its hes still alive hes fine.
Perhaps poor advice from them,? but I had no after effects other than healing up those
holes,? and the smell.? That was 45 years ago.

I still buy and play with 4-1000 tubes,? but have a chicken stick that I use before removing any

tubes.

73 Merv K9FD
> Glad this had a better than deadly ending, Dave. I was there once. Thrown about ten feet across the room, and was lucky to come to with everything still intact ? and nothing more than a couple of nasty burns.
>
> All it takes is one tiny slip of mind ?
>
> Grant NQ5T
>
>> On Nov 16, 2019, at 2:34 PM, David Stinson via BoatAnchors <boatanchors at lists.theporch.com> wrote:
>>
>> A WARNING: Close Encounter with the Death Angel.
>>
> _____
> BoatAnchors mailing list
> BoatAnchors at lists.theporch.com
> https://lists.theporch.com/mailman/listinfo/boatanchors

From 1oldlens1 at ix.netcom.com Sat Nov 16 16:02:00 2019
From: 1oldlens1 at ix.netcom.com (Richard Knoppow)
Date: Sat, 16 Nov 2019 13:02:00 -0800
Subject: [BoatAnchors] A WARNING: The Death Angel Flies Close.
In-Reply-To: <236f9016-a215-eca5-6c8d-46ee79893f7d@gmail.com>
References: <093c5dfc-b8e5-ac3f-ffd6-f24239a78c5b@ix.netcom.com>
 <D4D1E86D-42CE-4CA9-8518-F48AD7A5AEC6@gmail.com>
 <236f9016-a215-eca5-6c8d-46ee79893f7d@gmail.com>
Message-ID: <54919f5d-0aa8-32af-f6b6-d19b8b9fb481@ix.netcom.com>

    This discussion, and warning, remind me of the death of Ross Hull, in 1938 (I think by memory). Hull was an officer of the ARRL and well known among the amateur fraternity. One day he reached under a bench for some wire and got hold of some HV. Killed him on the spot. The death was a wake up for hams. Hull was very well known and had actually written on safety issues.
    Your experience may save some lives. There are rules for working with high voltage but lower voltages can be dangerous too. Its a good idea not to work if you are tired and to have someone else there. The problem is that when you are tired you may not realize it. All to easy to be careless or clumsy and it takes only an instant.

On 11/16/2019 12:05 PM, K9FD via BoatAnchors wrote:
> Admit to being careless in my younger days, I was testing some
> 4-1000 tubes I bought at a

> hamfest,?? I would test the tube,? kill the HV,? pull the plate
> cap off the tube and remove it,
> and put in another tube to test,? energize the HV, etc.,?? I had
> a number of tubes to test
> and my brain got out of sync,? I did not kill the HV and reached
> in to pull the plate cap off,
> BANG,? 5000 volts in my index finger and very lucky may arm was
> close to the chassis,
> the 5000 exited near my elbow.
> It blew a chunk off the end of my finger and a hole in my arm
> about 1/2 inch diameter,
> knocked me across the room,?? my wife came and helped me up,? she
> called the emergency
> room and they asked her if I was moving and talking,? she said
> yes,? and they told her OK
> nothing much we can do, its hes still alive hes fine.
> Perhaps poor advice from them,? but I had no after effects other
> than healing up those
> holes,? and the smell.? That was 45 years ago.
>
> I still buy and play with 4-1000 tubes,? but have a chicken stick
> that I use before removing any
> tubes.
>
> 73 Merv K9FD
>> Glad this had a better than deadly ending, Dave.? I was there
>> once.? Thrown about ten feet across the room, and was lucky to
>> come to with everything still intact ? and nothing more than a
>> couple of nasty burns.
>>
>> All it takes is one tiny slip of mind ?
>>
>> Grant NQ5T
>>
>>> On Nov 16, 2019, at 2:34 PM, David Stinson via BoatAnchors
>>> <boatanchors at lists.theporch.com> wrote:
>>>
>>> A WARNING:? Close Encounter with the Death Angel.
>>>
>> _____
>> BoatAnchors mailing list
>> BoatAnchors at lists.theporch.com
>> https://lists.theporch.com/mailman/listinfo/boatanchors
>
> _____
> BoatAnchors mailing list
> BoatAnchors at lists.theporch.com
> https://lists.theporch.com/mailman/listinfo/boatanchors

--
Richard Knoppow
1oldlens1 at ix.netcom.com
WB6KBL

From nf6x at nf6x.net Sat Nov 16 17:42:39 2019
From: nf6x at nf6x.net (Mark J. Blair)
Date: Sat, 16 Nov 2019 14:42:39 -0800
Subject: [BoatAnchors] A WARNING: The Death Angel Flies Close.
In-Reply-To: <54919f5d-0aa8-32af-f6b6-d19b8b9fb481@ix.netcom.com>
References: <093c5dfc-b8e5-ac3f-ffd6-f24239a78c5b@ix.netcom.com>
 <D4D1E86D-42CE-4CA9-8518-F48AD7A5AEC6@gmail.com>
 <236f9016-a215-eca5-6c8d-46ee79893f7d@gmail.com>
 <54919f5d-0aa8-32af-f6b6-d19b8b9fb481@ix.netcom.com>
Message-ID: <FD91BAE4-8469-42AD-BBE5-C05D6681BD61@nf6x.net>

This is a scary tale, and I'm sure glad that you lived to share it! I'm always pretty uneasy about working on my T-368C. It has a BIG snake hiding inside.

--
Mark J. Blair, NF6X <nf6x at nf6x.net>
http://www.nf6x.net/

From chuck.grandgent at gmail.com Sat Nov 16 17:59:18 2019
From: chuck.grandgent at gmail.com (Chuck Grandgent)
Date: Sat, 16 Nov 2019 17:59:18 -0500
Subject: [BoatAnchors] A WARNING: The Death Angel Flies Close.
In-Reply-To: <mailman.513.1573944167.29602.boatanchors@lists.theporch.com>
References: <mailman.513.1573944167.29602.boatanchors@lists.theporch.com>
Message-ID: <CAAPzMSYq1u4ky6pmhzOL0yFFShWdREkPgVtfTDwV4FQm3apciQ@mail.gmail.com>

When I moved to Florida 15 years ago, new doctor sent me to cardiologist because he didn't like my EKG.
Cardiologist came out after the test, said "Mr. Grandgent, you've had a heart attack ?"
I said "no, I think I would have remembered that."

Well I ended up telling him about when I was maybe 20 and working on an electric guitar amplifier on a concrete floor and barefoot. I remember I came to on the other side of the room with smoke in my nose and I had a bad headache for a week.
Cardiologist said it left scarring on my heart and distinctive EKG signature, but otherwise shouldn't be a problem.

Be careful out there.

Chuck, K1OM, Alachua, Florida

****
>

From gumbear at pacbell.net Sat Nov 16 18:24:39 2019
From: gumbear at pacbell.net (Arden Allen)
Date: Sat, 16 Nov 2019 15:24:39 -0800
Subject: [BoatAnchors] A WARNING: The Death Angel Flies Close.
In-Reply-To: <CAAPzMSYq1u4ky6pmhzOL0yFFShWdREkPgVtfTDwV4FQm3apciQ@mail.gmail.com>
References: <mailman.513.1573944167.29602.boatanchors@lists.theporch.com>
 <CAAPzMSYq1u4ky6pmhzOL0yFFShWdREkPgVtfTDwV4FQm3apciQ@mail.gmail.com>
Message-ID: <B3A01885D1734FD2AB5FB87B10124F7E@Lenovo>

> ....."Mr. Grandgent, you've had a heart attack ?"
I said "no, I think I would have remembered that." ....

Fortunately, when I hooked myself hand to hand across 250 volts DC many
years ago I was standing up. Gravity is what saved me. My bum was sore for
a couple of days as I had hit the floor free fall. They say DC is better
for your heart than AC. So far so good.

When I got big enough to get really risky I built myself a variac box. It
had a toggle switch for turning on and off and a nice bright neon pilot lamp
to tell me "it's on, stupid." It took me a while to recognize how important
that neon glow was, the hard way.

Arden Allen
KB6NAX

From chuck.grandgent at gmail.com Sat Nov 16 18:41:00 2019
From: chuck.grandgent at gmail.com (Chuck Grandgent)
Date: Sat, 16 Nov 2019 18:41:00 -0500
Subject: [BoatAnchors] A WARNING: The Death Angel Flies Close.
In-Reply-To: <B3A01885D1734FD2AB5FB87B10124F7E@Lenovo>
References: <mailman.513.1573944167.29602.boatanchors@lists.theporch.com>
 <CAAPzMSYq1u4ky6pmhzOL0yFFShWdREkPgVtfTDwV4FQm3apciQ@mail.gmail.com>
 <B3A01885D1734FD2AB5FB87B10124F7E@Lenovo>
Message-ID: <CAAPzMSap_fOi1yOLcqzZBPM38Z_k5tEkqzFq06iOTrua0_vyPw@mail.gmail.com>

 which reminds me, I just saw "Current War" (Tesla vs Edison) in the movie
theater last week,
Edison touted the idea of DC being safer than AC by frying animals and
humans with AC.
In case you're tempted to go see the movie, it was a bit boring for me.

Very authentic period depiction, but overall I would only give it a "C".

   Chuck, K1OM

From 1oldlens1 at ix.netcom.com Sun Nov 17 00:30:56 2019
From: 1oldlens1 at ix.netcom.com (Richard Knoppow)
Date: Sat, 16 Nov 2019 21:30:56 -0800
Subject: [BoatAnchors] A WARNING: The Death Angel Flies Close.
In-Reply-To: <CAAPzMSap_fOi1yOLcqzZBPM38Z_k5tEkqzFq06iOTrua0_vyPw@mail.gmail.com>
References: <mailman.513.1573944167.29602.boatanchors@lists.theporch.com>
 <CAAPzMSYq1u4ky6pmhzOL0yFFShWdREkPgVtfTDwV4FQm3apciQ@mail.gmail.com>
 <B3A01885D1734FD2AB5FB87B10124F7E@Lenovo>
 <CAAPzMSap_fOi1yOLcqzZBPM38Z_k5tEkqzFq06iOTrua0_vyPw@mail.gmail.com>
Message-ID: <1962f207-ef02-c758-42ea-ce804993f5e4@ix.netcom.com>

    This battle was the origin of the electric chair. Was
supposed to be a "humane" way of killing...

On 11/16/2019 3:41 PM, Chuck Grandgent via BoatAnchors wrote:
>   which reminds me, I just saw "Current War" (Tesla vs Edison) in the movie
> theater last week,
> Edison touted the idea of DC being safer than AC by frying animals and
> humans with AC.
> In case you're tempted to go see the movie, it was a bit boring for me.
> Very authentic period depiction, but overall I would only give it a "C".
>
>   Chuck, K1OM
> _____
> BoatAnchors mailing list
> BoatAnchors at lists.theporch.com
> https://lists.theporch.com/mailman/listinfo/boatanchors
>

--
Richard Knoppow
1oldlens1 at ix.netcom.com
WB6KBL

From thompson at mindspring.com Sun Nov 17 11:52:50 2019
From: thompson at mindspring.com (Dave Thompson)
Date: Sun, 17 Nov 2019 11:52:50 -0500 (GMT-05:00)
Subject: [BoatAnchors] Hello Chuck.
Message-ID: <1085839540.1467.1574009570700@wamui-eagle.atl.sa.earthlink.net>

 Chuck,

Hope you are doing OK. I just went through colon cancer and replacing my crank up

with a Rohn 45 tower.

The folks that moved from Thomaston to Atlanta were moved to the Westclox facility in Athens, GA. Funny with all the JIA consultants the firm hired a DP Manager who was just a computer center manager at Rich's (IBM 370) just a few years prior and no technical or systems experience. All that money on JIA was lost.

I unloaded most of my boatanchor gear and parts to Bob W9RAN in 2015.

73 Dave K4JRB (The General Ledger Guy)

From arc5 at ix.netcom.com Mon Nov 18 06:46:47 2019
From: arc5 at ix.netcom.com (David Stinson)
Date: Mon, 18 Nov 2019 05:46:47 -0600
Subject: [BoatAnchors] A WARNING
In-Reply-To: <093c5dfc-b8e5-ac3f-ffd6-f24239a78c5b@ix.netcom.com>
References: <093c5dfc-b8e5-ac3f-ffd6-f24239a78c5b@ix.netcom.com>
Message-ID: <0f39bb19-3359-1dfa-49bc-b279dce8a884@ix.netcom.com>

Thank you all for your many kind words and thoughtful insights.
Our community is exceptional.

TNX ES 73 OM DE Dave AB5S

P.S. the GO-9 is on-the-air and making contacts.? Still a bit to do.
Will write it up soon.?? I have named the transmitter "The Snake." :-D

From arc5 at ix.netcom.com Wed Nov 20 07:30:13 2019
From: arc5 at ix.netcom.com (David Stinson)
Date: Wed, 20 Nov 2019 06:30:13 -0600
Subject: [BoatAnchors] GO-9: Cathode Mod Questions
Message-ID: <c7ac0098-2bc8-e057-f99f-7c6d3cf27c76@ix.netcom.com>

Good Morning.? The GO-9 (a.k.a. "The Snake") is making regular AM contacts on 75 meters.? I am using Cathode modulation because Suppressor or Screen modulation will require chopping, drilling and hacking on the HF Transmitter deck.? I am unwilling to do that.? The only "modification" to the HF Deck now is to lift one ground and add one wire.? Want to keep it that way.? Cathode modulation can be done entirely in the home-brew power supply.

A 20-Watt PA amp with output taps of 4-8-16 Ohms and 70-Volt Line.? This is feeding a Thordarson T-22S83 15W Line-to-Voice Coil transformer.? The transformer secondary side has 4-8-16 Ohm taps. The primary has 2000-1500-1000-500 Ohm taps.?? The PA amp 4-Ohm output is connected to the transformer 4-Ohm tap.? The transformer 2000-ohm winding is inserted

in the 803 PA's cathode circuit at the filament transformer's center-tap connection to ground.? See the attached graphic.? The transformer is passing about 200 mA at no modulation.?? With the transmitter B+ set to provide 100W carrier out, this provides about 80% modulation before flat-topping and distortion.? Reducing the output power to 60w or so will get it near 100%.? On-air audio reports have been good. The transformer does not significantly heat-up, even on long transmissions.

I have attempted to use a couple of "actual" modulation and "audio output" transformers, using "cut and try" methods.? None of these would do better than 50% modulation before flat-topping and distortion, probably at least in part due to impedance mismatches.? They sound crummy.

I don't know much about the "right way" to do Cathode Modulation.? How does one determine the "correct" impedance transform at this point, how much audio power is actually needed, etc?? Who's the expert?

TNX OM DE Dave AB5S
P.S. If mailman would allow Bcc, it could cut-down on duplicate mail.

From arc5 at ix.netcom.com Fri Nov 22 17:42:24 2019
From: arc5 at ix.netcom.com (David Stinson)
Date: Fri, 22 Nov 2019 16:42:24 -0600
Subject: [BoatAnchors] GO-9: Cathode Mod Questions and...
In-Reply-To: <c7ac0098-2bc8-e057-f99f-7c6d3cf27c76@ix.netcom.com>
References: <c7ac0098-2bc8-e057-f99f-7c6d3cf27c76@ix.netcom.com>
Message-ID: <df8728c4-a0ec-d9a2-76c6-19cd1ae29d18@ix.netcom.com>

?Thank you everyone for your replies to this thread and excellent information.

As of now, I'm still with the original solution.? Changing from 2000 ohms to lower taps (1500-1000-500) did not improve things; at the 500 tap, the rig would only modulate to about 10% before flat-topping and distortion.? I can get near 100% clean modulation with the rig throttled-back to 70 watts or less.? If I ever find a larger-core audio transformer with similar impedance taps, it will be interesting to try it.

Still haven't added yet another transformer to change the grid-blocking supply and I won't if I can help it.? I have added lights to warn of an improperly-wired AC outlet.?? Working on installing a Powerstat 10B variac for internal control of the transmitter power.? Still more to do.

GL OM ES 73 DE Dave AB5S

From arc5 at ix.netcom.com Fri Nov 22 17:45:32 2019
From: arc5 at ix.netcom.com (David Stinson)
Date: Fri, 22 Nov 2019 16:45:32 -0600
Subject: [BoatAnchors] GO-9 Cabinet Panel Needed
In-Reply-To: <c7ac0098-2bc8-e057-f99f-7c6d3cf27c76@ix.netcom.com>
References: <c7ac0098-2bc8-e057-f99f-7c6d3cf27c76@ix.netcom.com>
Message-ID: <767a1459-5500-cc13-2d5b-f9485691bc28@ix.netcom.com>

Does anyone have a junker GO-9 power supply?? I need the tall, thin back
panel that goes on the rear of the power supply.? I have Lexan covering
the "bitey" areas for now.
Thanks,

Dave S.

From gumbear at pacbell.net Fri Nov 22 19:19:10 2019
From: gumbear at pacbell.net (Arden Allen)
Date: Fri, 22 Nov 2019 16:19:10 -0800
Subject: [BoatAnchors] GO-9: Cathode Mod Questions and...
In-Reply-To: <df8728c4-a0ec-d9a2-76c6-19cd1ae29d18@ix.netcom.com>
References: <c7ac0098-2bc8-e057-f99f-7c6d3cf27c76@ix.netcom.com>
 <df8728c4-a0ec-d9a2-76c6-19cd1ae29d18@ix.netcom.com>
Message-ID: <BA88FA2BC67D45B3BB406598BD3ABC89@Lenovo>

> ....I can get near 100% clean modulation with the rig
throttled-back to 70 watts or less. If I ever find a larger-core audio
transformer with similar impedance taps, it will be interesting to try it.
....

It's all about impedance matching. There's no free lunch, you just have to
serve what you have properly. A larger core transformer will not give you a
power gain. You have to get the most **undistorted power** from the
modulator to the final, i.e., the modulator has to remain linear, the
transformer unlikely being the cause of distortion at best impedance match.

Arden Allen
KB6NAX

From infomet at embarqmail.com Sat Nov 23 13:59:21 2019
From: infomet at embarqmail.com (Wilson Lamb)
Date: Sat, 23 Nov 2019 13:59:21 -0500 (EST)
Subject: [BoatAnchors] Cathode Modulation
In-Reply-To: <mailman.6.1574528401.16826.boatanchors@lists.theporch.com>
References: <mailman.6.1574528401.16826.boatanchors@lists.theporch.com>
Message-ID: <595605822.625363.1574535561962.JavaMail.zimbra@embarqmail.com>

OK, I can't do it from memory, but the Handbook should show how to calculate impedance of a load.
I'm sure it's quite low in a cathode circuit.
I'm also sure that your plate current is magnetizing the core of your transformer, causing the flat topping, although there may be audio amp problems going on too.
And while you're studying, read about Heising modulation.
It uses a choke and coupling cap to allow modulation of the RF amp without having to put the plate current through the transformer secondary.
Shooting in the dark is unlikely to find a good solution.
WL

From wlfuqu00 at uky.edu Sat Nov 23 15:48:48 2019
From: wlfuqu00 at uky.edu (Fuqua, William)
Date: Sat, 23 Nov 2019 20:48:48 +0000
Subject: [BoatAnchors] Cathode Modulation
In-Reply-To: <595605822.625363.1574535561962.JavaMail.zimbra@embarqmail.com>
References: <mailman.6.1574528401.16826.boatanchors@lists.theporch.com>,
 <595605822.625363.1574535561962.JavaMail.zimbra@embarqmail.com>
Message-ID:
<DM5PR03MB290892A000E589A0415962CFCB480@DM5PR03MB2908.namprd03.prod.outlook.com>

Many years ago there was an article in either the GE or RCA news letter about a single ended plate modulator using a power supply transformer (perhaps from a TV) as the modulation inductor. Perhaps that would be a source of cheap modulation choke.
  With lower impedance of cathode modulation the the primary could be used rather than the secondary.
     Anyone remember this article?

73
Bill wa4lav

From wlfuqu00 at uky.edu Sat Nov 23 15:58:42 2019
From: wlfuqu00 at uky.edu (Fuqua, William)
Date: Sat, 23 Nov 2019 20:58:42 +0000
Subject: [BoatAnchors] Cathode Modulation
In-Reply-To:
<DM5PR03MB290892A000E589A0415962CFCB480@DM5PR03MB2908.namprd03.prod.outlook.com>
References: <mailman.6.1574528401.16826.boatanchors@lists.theporch.com>,
 <595605822.625363.1574535561962.JavaMail.zimbra@embarqmail.com>,
 <DM5PR03MB290892A000E589A0415962CFCB480@DM5PR03MB2908.namprd03.prod.outlook.com>
Message-ID:
<DM5PR03MB2908AD61E922A2E4125199D6CB480@DM5PR03MB2908.namprd03.prod.outlook.com>

Ok, found it, not quite was I thought it was but take a look. RCA Volume 24,

Number 3<http://n4trb.com/AmateurRadio/RCA_Ham_Tips/issues/rcahamtips2403.pdf>.
They used it as a modulation transformer but balanced the current tru the windings to attempt to avoid saturation.
73
Bill wa4lav
RCA Ham Tips - N4TRB<http://n4trb.com/AmateurRadio/RCA_Ham_Tips/issues/rcahamtips2403.pdf>
Title: RCA Ham Tips Author: RCA Electronic Components and Device Subject: ham radio, modulator Keywords: RCA, ham tips, modulator, 12AX7A, 6JE6, 6AV6
n4trb.com

From: BoatAnchors <boatanchors-bounces at lists.theporch.com> on behalf of Fuqua, William <wlfuqu00 at uky.edu>
Sent: Saturday, November 23, 2019 3:48 PM
To: Ham radios with tubes <boatanchors at lists.theporch.com>
Subject: Re: [BoatAnchors] Cathode Modulation

Many years ago there was an article in either the GE or RCA news letter about a single ended plate modulator using a power supply transformer (perhaps from a TV) as the modulation inductor. Perhaps that would be a source of cheap modulation choke.
  With lower impedance of cathode modulation the the primary could be used rather than the secondary.
     Anyone remember this article?

73
Bill wa4lav

BoatAnchors mailing list
BoatAnchors at lists.theporch.com
https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Flists.theporch.com%2Fmailman%2Flistinfo%2Fboatanchors&data=02%7C01%7Cwlfuqu00%40uky.edu%7C849f3af15efd4699652508d770568ca9%7C2b30530b69b64457b818481cb53d42ae%7C0%7C0%7C637101389357710535&sdata=VvG%2F30J7bK6aumYORvmK57KAvKCIw4sz4U6xl6I9K8M%3D&reserved=0

From gumbear at pacbell.net Sat Nov 23 20:12:43 2019
From: gumbear at pacbell.net (Arden Allen)
Date: Sat, 23 Nov 2019 17:12:43 -0800
Subject: [BoatAnchors] Cathode Modulation
In-Reply-To:
<DM5PR03MB2908AD61E922A2E4125199D6CB480@DM5PR03MB2908.namprd03.prod.outlook.com>
References: <mailman.6.1574528401.16826.boatanchors@lists.theporch.com>,
 <595605822.625363.1574535561962.JavaMail.zimbra@embarqmail.com>,

<DM5PR03MB290892A000E589A0415962CFCB480@DM5PR03MB2908.namprd03.prod.outlook.com>
<DM5PR03MB2908AD61E922A2E4125199D6CB480@DM5PR03MB2908.namprd03.prod.outlook.com>
Message-ID: <805D90B3060F4E41A366E66BBBC13EFD@Lenovo>

In <rcahamtips2403.pdf> C10 and C12 are indicated as uF. Should be uuF.

Arden Allen
KB6NAX